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That personal profile image might jeopardize your rental opportunity! On the relative impact of the seller's facial expressions upon buying behavior on Airbnb™☆

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ABSTRACT

Airbnb is an online marketplace for peer-to-peer accommodation rental services. In contrast to traditional rental services, personal profile images, i.e. the sellers' facial images, are present along with the housing on offer. This study aims to investigate the impact of a seller's facial image and their expression upon buyers' behavior in this context. The impact of facial expressions was investigated together with other relevant variables (price and customer ratings). Findings from a conjoint study (n = 139) show that the impact of a seller's facial expression on buying behavior in an online peer-to-peer context is significant. A negative facial expression and absence of facial image (head silhouette) abates approach and evokes avoidance tendencies to explore a specific web page on Airbnb, and, simultaneously decrease the likelihood to rent. The reverse effect was true for neutral and positive facial expressions. We found that a negative and positive facial expression had more impact on likelihood to rent, for women than for men. Further analysis shows that the absence of facial image and an angry facial expression cannot be compensated for by a low price and top customer ratings related to likelihood to rent. Practitioners should keep in mind that the presence/absence of facial images and their inherent expressions have a significant impact in the peer-to-peer accommodation rental services.

1. Introduction

The sharing economy, characterized by peer-to-peer transactions, has seen immense growth recently. These marketplaces are defined by direct transactions between individuals (buyers and sellers), while the marketplace itself is provided by a third party (Botsman & Rogers, 2011). According to a recent survey by Penn Schoen Berland (2016), 22% of American adults have already offered something to this market, and 42% had used the service to buy a product or a service. PricewaterhouseCoopers (PwC) (2014), has predicted that these sharing economy sectors will be worth around $335 billion by 2025. Their research further indicates that the most important growth sectors are lending and crowd funding, online staffing, and peer-to-peer accommodation. Participants in the peer-to-peer market tend to be motivated by new economic, environmental, and social factors (Bucher, Fieseler, & Lutz, 2016; Böcker & Meelen, 2016; Schor, 2014) as this marketplace has some additional attributes compared to more traditional forms of commerce. The behavior of buyers on the peer-to-peer marketplace is, however, not well understood.

Airbnb is a peer-to-peer platform that facilitates accommodation rental services. This marketplace offers intangible experienced goods (Levitt, 1981, pp. 94–102), which are typically produced and consumed simultaneously (Grönroos, 1978). The sellers are co-producers of the service experience. Thus, the quality of renting an apartment on Airbnb cannot be verified before the buyer has started using the service. The Sellers on Airbnb are, therefore, an integrated part of the service that is delivered, and are expected to fulfill the buyer's needs throughout their stay. Consequently,

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Airbnb has considerably more personal information about the seller than traditional peer-to-peer marketplaces such as eBay (Ert, Fleischer, & Magen, 2016). One such example is the extensive use of sellers' personal images with various facial expressions. The presence of an image of a seller in the context of peer-to-peer accommodation rental can thus be understood as a means of identity verification, and is used to establish a personal relationship between the seller and buyer (Guttentag, 2015). Based on these factors, the importance of personal attributes increases in this context (e.g., Ert et al., 2016).

The brain has specific parts which are dedicated to facial perception and recognition (Haxby, Hoffman, & Gobbini, 2000; Tsao, Freiwald, Knutsen, Mandeville, & Tootell, 2003). Therefore, people have high sensitivity to faces and face-like stimuli. The impact of facial expressions has been thoroughly studied in many disciplines such as marketing (Derbaix & Bree, 1997; Small & Verrochi, 2009), information systems (Cyr, Head, Larios, & Pan, 2009), biology (Thomas et al., 2001), anthropology (Schmidt & Cohn, 2001), psychology (Niedenthal, Brauer, Halberstadt, & Innes-Ker, 2001), and neuroscience (Lee et al., 2002). Findings show that facial expressions have different impacts on people's emotions, cognitions, and behavior (Swami & Furnham, 2008). A previous study by Ert et al., (2016), has investigated the role of personal images present on Airbnb in relation to trust and reputation, and their findings show that people were willing to pay more for properties belonging to sellers who were perceived to be trustworthy.

To investigate the impact of a seller's facial expressions upon buyers' behavior we shall use the approach-avoidance distinction. Studies have been conducted on the impact of facial expressions on approach and avoidance in a general behavioral context (e.g., Marsh, Ambady, & Kleck, 2005). However, to the best of our knowledge, no studies have yet investigated the impact of the seller's facial expressions on approach and avoidance related to peer-to-peer accommodation rental services. Investigating the impact of facial expressions from the lens of approach and avoidance contributes to the understanding, predicting and influencing of buyer behavior in this context. The aim of this study is, therefore, to investigate the impact of the seller's personal profile image and their facial expression on buying behavior within the context of peer-to-peer accommodation rental service.

2. Literature review

In the evolutionary landscape, primitive humans needed to be able to recognize who was willing to cooperate and share resources. It was thus vital to distinguish between friend and foe. Darwin (1872) indicated that facial expressions convey information regarding the basic behavioral intentions and emotional tendencies of the organism (human or animal) to others. As human facial expressions occur largely in interactive contexts, they are generally considered to be cooperative signaling systems, benefiting both signaler and receiver (Fridlund, 1997). The face has evolved to send expression signals that have low correlations with other expressions, and the brain further decorrelates and therefore improves these signals (Smith, Cottrell, Gosselin, & Schyns, 2005). Consequently, an incorrect interpretation of facial expressions such as anger, fear, joy, and so forth is rare. Such efficient perception of facial expressions is advantageous because of the important role faces play in signaling potential positive or negative outcomes (Eastwood, Smilek, & Merikle, 2003).

2.1. Negative facial expression

Throughout evolutionary history, a strong arousal response to threatening stimuli such as angry facial expressions may have facilitated a rapid adaptive response for survival (Tipples, 2008), as threatening faces are expected to activate the fight-flight system (Mühlberger et al., 2011). An angry face is regarded to be an ideal stimulus for activating the human fear system (Öhman, 1986). The adaptive value of an angry face can best be summarized by this example from Gaspar (2006): An angry face simultaneously communicates the emotion of anger and signals a conditional action tendency of the type: “if you do not withdraw or stop what you are doing, I will attack you.” (Gaspar, 2006, p. 5). Therefore, expressions of anger demand conflict resolution on the part of the perceiver (Knutson, 1996). This innate unconscious reaction is also experienced when viewing images of angry expressions. Öhman and Dimberg (1978) found that facial displays of anger enhance fear conditioning in observers, even when the stimulus photographs are not consciously perceived. A person showing anger is regarded as unaffiliated (Hess, Blairy, & Kleck, 2000) and therefore unwilling to be socially cooperative. From this, we can determine that an angry facial expression is perceived as a sign of threat and aggression and a signal of unsociable/uncooperative behavior. Based on this, our first assumption is that an image of a seller with an angry facial expression abates approach and evokes an avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace, and simultaneously decreases the likelihood to rent.

2.2. Absence of a human image

Aldiri, Hobbs, and Qahwaji (2008) emphasize that social presence stimuli, such as facial images on a peer-to-peer property rental marketplace, may increase trustworthiness, and consequently have a positive impact on the user's experience. This corresponds with findings in a study by Cyr et al. (2009), which indicates that social cues on a website may elicit trust. Moreover, they found that not only do facial photos increase the level of trust, but they also produced a perception of social presence and influenced the levels of image appeal. Our second assumption is that the absence of an image of a seller abates approach and evokes avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace, and simultaneously decreases the likelihood to rent.

2.3. Neutral facial expression

A neutral facial expression, often described as “blank expression”, is a type of expression that signify the absence of emotions. According to Schneider, Hempel, and Lynch (2013), a neutral facial expression also signifies control of emotions. A study by Hareli, Moran-Amir, David, and Hess (2013), demonstrated that men who displayed neutral and angry expressions are seen as more dominating then men who displayed sadness or shame. Moreover, men who showed emotionally neutral expressions were seen as more dominating than men who expressed anger or happiness. Krumhuber et al. (2007) discovered in their study that a neutral expression was rated as the least trustworthy. Our third assumption is therefore that an image of a seller with a neutral facial expression abates approach and evokes avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace, and simultaneously decreases the likelihood to rent.

2.4. Positive facial expression

Smiles, in general, elicit positive responses by observers. When showing happiness, a person is regarded as highly affiliative and cooperative (Hess et al., 2000; Knutson, 1996). Scharlemann, Eckel, Kacelnik, and Wilson (2001) showed that, in a game of trust, participants trusted smiling partners more than nonsmiling ones. A

reason behind this could be inferred from the findings of Baudouin, Gilibert, Sansone, and Tiberghien (2000), who found that a smile increases the feeling of familiarity with unknown and known faces. Humans trust familiar individuals, and a smile increases this feeling. In general, smiling faces, in comparison to nonsmiling or neutral ones, typically receive more favorable ratings. Smiling individuals are perceived as more sociable, honest, and polite (Hess, Beaupré, & Cheung, 2002). Therefore, a smiling expression (even a fake one) would show willingness to cooperate more than a neutral expression. From this, our fourth assumption is that an image of a seller with a positive facial expression evokes approach and abates avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace, and simultaneously increases the likelihood to rent.

2.5. Facial expressions and gender differences

It is well cited in literature that women are more adept than men at detecting and using nonverbal communication (Hall, 1978; Hall, Carter, & Horgan, 2000; Swami & Furnham, 2008). Based on previous studies, Hall and Matsumoto (2004) found that women are more accurate than men in judging emotional meaning from nonverbal cues even in situations of minimal stimulus information. Further supporting this, Hoffmann, Kessler, Eppel, Rukavina, and Traue (2010) found that women are more accurate than men at recognizing even subtle facial displays of emotion. Using functional magnetic resonance imaging equipment, Lee et al. (2002) found that male and female subjects used a different set of neural correlates when processing faces of happy or sad expressions. This was more evident when faces portraying sad emotions were being processed. In a study by Biele and Grabowska (2006), women judged anger as more intense than happiness (for both dynamic and static expression stimuli), while men rated a dynamic expression as more intense than a static one, but only for the facial expression of anger. From this discussion, our fifth assumption is that the impact of the seller's negative- or positive facial expression on the likelihood to rent is stronger toward women than toward men.

3. Method

To make the study as realistic as possible, we decided to include two more independent variables in addition to facial expressions: price and customer ratings. Price was added because this is one of the main motivating factors for buyers to act on a peer-to-peer rental marketplace (Bucher et al., 2016). In regard to the latter, given that social coordination is essential for humans (Hess & Bourgeois, 2010), in this context customer ratings function, most probably, as a form of social coordination mechanism among peer users. The dependent variables in this study are defined as an approach and avoidance tendency to explore a specific web page on Airbnb and likelihood to rent the apartment on Airbnb.

3.1. Participants

A population of undergraduate students were invited to participate in the study, as they are the key target segment for peer-to-peer accommodation rentals. The sample for the study comprised 139 participants (eighteen cases were removed due to missing data). The distribution by gender was 48% men and 52% women. Participants were between 19 and 38 years old, and the mean age was 23. Twenty-five percent of the participants had prior experience with renting accommodation on Airbnb. Participants were informed that the study would last up to 20 min, and they were not offered any payment or incentives for participating.

3.2. Apparatus

A verbal description of the scenario together with visual pictures, as suggested by Holbrook and Moore (1981), was presented to the participants. Stimulus cards used in the study were created with Photoshop. Appendix A shows how the scenario was presented and an example of a stimulus card used in the study is given. The study instrument was administrated using a PowerPoint presentation for the participants in an auditorium, together with a questionnaire.

3.3. Procedure

A scenario was used in which the participant should assume that he/she and a friend were planning a vacation to New York for the winter holidays. The plan is to stay from Wednesday to Sunday (four nights). They should assume that they had found an apartment on Airbnb, a social marketplace that offers individuals (buyers) the opportunity to rent accommodation worldwide from other individuals (sellers). In addition to information about the seller (image, customer ratings, etc.), Airbnb provides information about the average price per night in this period. The participants were then told that they would be presented with 20 different choice situations to consider in relation to the tendency to explore this specific web page, and the likelihood of renting this apartment. The first purchase situation was presented as an example to highlight the stimuli that should be evaluated before answering the questionnaire.

The facial expressions were operationalized at four levels: Negative facial expression represented by an “angry” image, absence of facial image represented by “head silhouette”, a neutral facial expression represented by a “neutral” image, and a positive facial expression represented by a “joy” image. Vriens (1994) suggests that, in situations where the effect of pricing is not the main variable under study, the use of a few realistic price levels will suffice. A search on Airbnb for this destination and period reveals that the average price per night was NOK 1755 (NOK 100 is approximately USD 12), the lowest price is approximately NOK 278, and the highest price approximately NOK 3274. From this, price was operationalized at three levels: 45% above average price (NOK 2545 per night), average price (NOK 1755 per night), and 45% below average price (NOK 965 per night). According to Zervas, Proserpio, and Byers (2016), 55% of Airbnb properties have five stars rating, 39% have four and a half stars, 5% four stars, and, 1% three and a half stars, with a distributed mean of around 4.7 stars. To ensure a good ecological validity, we decided to operationalize customer ratings on three levels: four, four and a half and five stars. Table 1 shows the three antecedent stimuli used in the study and their levels.

Table 1
Antecedent stimuli and levels considered in the study.

Antecedent stimuli	Levels
Facial expressions[a]	1. Negative facial expression
	2. Absence of facial image
	3. Neutral facial expression
	4. Positive facial expression
Price	1. Above average price
	2. Average price
	3. Below average price
Customer ratings	1. Four stars
	2. Four and a half stars
	3. Five stars

[a] The three facial expression images are taken from a Cohn-Kanade AU-coded facial expression database (Kanade, Cohn, & Tian, 2000; Lucey et al., 2010) with consent for publication (see Appendix B).

The main effect model (Hair, Black, Babin, & Anderson, 2010) was used in designing and implementing the conjoint study, which assumes that the participants add up the values for each stimulus to get the total value of combinations of stimuli. The data collection method used was the full-profile method (Green & Srinivasan, 1978). The main advantage of this method is that it offers a more realistic description by defining the levels of each of the stimulus (Green & Srinivasan, 1978). Wittink, Vriens, and Burhenne (1994) suggest that when using pictures for stimulus presentation, findings favor the full-profile method over other means of stimulus construction. We also chose this method because of its ability to reduce the number of comparisons using fractional factorial design. A fractional factorial design is used in preparing stimuli combinations that use only a subset of the possible stimuli needed, called an orthogonal array, to estimate the results based on the assumed composition rule (Hair et al., 2010). In addition, Green and Srinivasan (1990) propose that a fractional factorial design with a full-profile method is preferable if the number of stimuli is small (up to six). Using IBM SPSS version 22, the fractional factorial design resulted in 20 stimulus cards (including four hold out cards), summarized in Appendix C.

The tendency to explore the specific web page on Airbnb was measured by the participants' reports on approach and avoidance items adopted from Mehrabian and Russell's recommendations (1974). The approach was measured by asking the participants, “How much time would you spend on this web page on Airbnb?” and “How much would you like to explore this web page on Airbnb?” Avoidance was measured by asking “To what degree would you like to leave and get away from this web page on Airbnb?” and “To what degree would you avoid coming back to this web page on Airbnb?” The scales for approach and avoidance ranged from “Minimal tendency” (coded 0) to “Maximal tendency” (coded 7). We also measured likelihood to rent by asking the participants: “What would be the likelihood that you would rent this apartment from Airbnb?” The likelihood to rent variable scale ranged from “Not at all likely to rent” (coded 0) to “Certainly would like to rent” (coded 7).

The participants were informed about their role (to evaluate purchase situations) in the study, but they were not informed about the focus of the study, i.e., facial expressions and the connections between the stimuli. This was done to prevent any bias that might arise due to predisposition influences. After the participants evaluated the 20 stimulus cards, they were asked to fill in their demographic data.

3.4. Analysis

When analyzing the data, a linear effect was assumed for customer ratings, which indicated that the data for this stimulus was expected to be linearly related to levels (e.g., preference is lower for four-star customer ratings than for five-star ratings). We might assume that there is a linear relationship between behavior and price (e.g., preference is high for low price and low for high price). However, price can also be an indicator of quality (see Zeithaml, 1988), and results in that a high price is preferred. A discrete effect was thus used for the antecedent stimulus price, which means that no assumption was made about the relationship between the levels and the data. A discrete effect was also assumed for the antecedent stimulus facial expressions. The model for the response r_i for the i th card from a subject is

$$r_i = \beta_0 + \sum_{p=1}^{t} u_{pk_{pi}} \tag{1}$$

where $u_{jk_{ji}}$ is the utility (part-worth) associated with the k_{pi} th level of the pth factor on the ith card. Consumer preferences were modeled using part-worth utility function model (Green & Srinivasan, 1978). The model posits that

$$s_k = \sum_{p=1}^{t} f_p\left(y_{kp}\right) \tag{2}$$

where s_k denotes the preference for a stimulus object at kth level, f_p denotes the part-worth function of each of the k different levels of the stimulus object y_{kp} for the pth attribute. In practice, $f_p(y_{kp})$ is usually estimated only for three or four levels for y_{kp} with the part worth for intermediate y_{kp} obtained by linear interpolation (Green & Srinivasan, 1978). The relative importance of a product attribute compared to others can be calculated based on the utility attached to that particular attribute's single performance level, using the equation below

$$O_p = \frac{(\max u_p - \min u_p)}{\sum_{p=1}^{t}(\max u - \min u_p)}$$

where O_p is the relative importance of the product attribute, max u_p is the utility of the attribute's most preferred level and min u_p is the utility of the attribute's least preferred level. IBM SPSS performs conjoint analysis using ordinary last-squares estimation method.

4. Results

The analysis of the data shows correlations between the observed and estimated preferences for approach (Pearson's r = 0.990, p = 0.000), avoidance (Pearson's r = 0.992, p = 0.000), and the likelihood to rent (Pearson's r 0.994, p = 0.000). Table 2 shows the importance values for facial expressions, price, and customer ratings, and impact estimate for each level.

It is apparent that price was, on average, the most important antecedent stimulus, with an importance value of 50.4% for approach and 48.1% for avoidance related to tendency to explore the web page on Airbnb, and an importance value of 56.9% for likelihood to rent the apartment on Airbnb. Facial expressions were the second most important antecedent stimulus, with an importance value of 32.9% for approach and 36.7% for avoidance related to tendency to explore the web page on Airbnb, and 28.3% for likelihood to rent. The third most important stimulus was customer ratings, with an importance value of 16.7% for approach and 15.2% for avoidance related to tendency to explore, and 14.8% for likelihood to rent.

Table 2 shows that a seller's image with a negative facial expression or absence of facial image has a negative impact estimate score (−0.434 and −0.402, respectively) toward approach behavior to explore a specific web page. Moreover, these antecedent stimuli increase avoidance tendency to explore, with an impact estimate score of 0.580 for negative facial expression and 0.393 for absence of a facial image. A negative facial expression and absence of facial image has a negative impact on the likelihood to rent the apartment on Airbnb, with an impact estimate score of −0.490 and −0.378, respectively.

Table 2 also shows that positive and neutral seller's facial expression images increase approach behavior toward exploring the website, albeit the latter to a lesser degree, with an impact estimate score of 0.541 and 0.295, respectively. Furthermore, both positive and neutral facial expressions dampen avoidance behavior toward exploration, with an impact estimate score of −0.647 and −0.326, respectively. It is also evident that a positive and, to a lesser degree, a neutral facial expression can increase the likelihood to rent the apartment, with an impact estimate score of 0.516 and 0.352, respectively.

Table 2
Test of the impact of antecedent stimuli on approach-avoidance behavior and likelihood to rent on Airbnb.

Antecedent stimuli and levels	Tendency to explore the web page						Likelihood to rent		
	Approach			Avoidance					
	Impact estimate	Standard error	Importance values	Impact estimate	Standard error	Importance values	Impact estimate	Standard error	Importance values
Facial expressions			32.9%			36.7%			28.3%
Negative facial expression	−0.434	0.088		0.580	0.081		−0.490	0.089	
Absence of facial image	−0.402	0.088		0.393	0.081		−0.378	0.089	
Neutral facial expression	0.295	0.088		−0.326	0.081		0.352	0.089	
Positive facial expression	0.541	0.088		−0.647	0.081		0.516	0.089	
Price			50.4%			48.1%			56.9%
Above average price	−1.128	0.068		1.147	0.063		−1.515	0.068	
Average price	0.006	0.080		−0.059	0.073		0.004	0.080	
Below average price	1.122	0.080		−1.088	0.073		1.511	0.080	
Customer ratings			16.7%			15.2%			14.8%
Four stars	0.349	0.062		−0.291	0.057		0.351	0.062	
Four and a half stars	0.699	0.123		−0.582	0.113		0.701	0.124	
Five stars	1.048	0.185		−0.874	0.170		1.052	0.186	
(Constant)	2.959	0.120		3.290	0.111		2.571	0.121	

Table 3 summarizes the difference between impact estimate scores for men and women, based on the effect from negative and positive facial expressions on likelihood to rent the apartment. The analysis shows correlations between the observed and estimated preferences for men (Pearson's r = 0.992, p = 0.000) and for women (Pearson's r = 0.991, p = 0.000). An independent-samples *t*-test was conducted to compare the impact of negative and positive facial expressions for men and women. For negative facial expression there was significant difference in score for men (M = −0.32, SD = 0.52) and women (M = −0.64, SD = 0.61); p = 0.001 (two tailed). For positive facial expression there was no significant difference in score for men (M = 0.42, SD = 0.52) and women (M = 0.59, SD = 0.58); p = 0.073 (two tailed).

Table 3 indicates that the facial expressions levels had different effect toward men and women on likelihood to rent the apartment. Overall, both negative and positive facial expressions had a stronger impact (positive and negative) toward women's' behavior in a peer-to-peer rental context. The strongest difference between the male and female reaction toward the facial expression stimuli levels can be seen in the negative facial expression for likelihood to rent, as women seem to be more negatively affected in this case, with a score of −0.643 compared to −0.325 for men.

A scenario simulation related to likelihood to rent the apartment from Airbnb was devised where price and customer rating levels varied from top, average and bottom scenarios on all four facial expression levels. All cases were analyzed in relation to each other. Table 4 shows the stimuli and attribute levels for each of the cases. The output of each case is shown according to preference score along with three preference probability score: Maximum utility, Bradley-Terry-Luce, and Logit. According to Hair et al. (2010), the maximum utility probability is the primary method to analyze the results, as booking a peer-to-peer rental accommodation in a global city such as New York is a sporadic rather than routine choice for the participants. Bradley-Terry-Luce and Logit are optimal measurements for repetitive choice situations.

Table 3
Impact estimate scores for facial expressions levels in a peer-to-peer accommodation rental setting for men and women.

Facial expressions	Men's likelihood to rent	Women's likelihood to rent
Negative facial expression	−0.325	−0.643
Positive facial expression	0.418	0.607

According to maximum utility probability, Table 4 shows that Scenario J is the most preferred, where 49.1% of the participants favor a situation with a personal profile image of a seller with a positive facial expression, the apartment is below average price, and a five-star customer rating. Scenario G is second most preferred, where 31.5% of the participants prefer a situation with a neutral facial expression, below average price, and five-star customer ratings. The next preferred scenarios are A and D, with a maximum utility score of 6.9% and 6.8%, respectively. None of the participants preferred scenario B, C, F and I when purchasing an apartment on Airbnb.

5. Discussion

The face is a visible signal of other people's social intentions and motivations, and facial expressions are therefore critical stimuli in social interaction (Schmidt & Cohn, 2001), such as purchasing an apartment on Airbnb. The aim of this study was to investigate the impact of the seller's facial expression on buying behavior within the context of peer-to-peer accommodation rental service. To the best of our knowledge, this is the first study that investigates the impact of an image of sellers' facial expressions in this context. A conjoint study was designed to investigate the impact of facial expressions together with price and customer ratings. The mix of antecedent stimuli was intended to create a realistic situation and to assess the impact of facial expressions in relation to other important stimuli in this specific purchasing situation. The relative impact of facial expressions in an online peer-to-peer accommodation rental situation is significant, albeit less so than price. Customer ratings (four stars, four and a half stars, and five stars) was least influential stimuli in this situation.

Results show that an image of a seller that has a negative facial expression, or the absence of facial image (head silhouette), abates approach and evokes avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace. In addition, these two facial expressions have a negative impact on the likelihood to rent the apartment. These results are in accordance with the literature, as anger is associated with pain (Kappesser & de C

Table 4
Outcomes of the scenario simulation analysis.

Scenario	Antecedent stimuli and levels			Outcomes			
	Facial expressions	Price	Customer ratings	Preference scores	Maximum Utility[a]	Bradley-Terry-Luce[b]	Logit[b]
A	Negative facial expressions	Below average price	Five stars	4.645	6.9%	11.2%	11.8%
B	Negative facial expressions	Average price	Four and a half stars	2.787	0.0%	7.4%	3.1%
C	Negative facial expressions	Above average price	Four stars	0.917	0.0%	3.3%	0.7%
D	Absence facial expressions	Below average price	Five stars	4.756	6.8%	11.3%	12.8%
E	Absence facial expressions	Average price	Four and a half stars	2.898	0.7%	7.5%	3.1%
F	Absence facial expressions	Above average price	Four stars	1.029	0.0%	3.4%	0.8%
G	Neutral facial expressions	Below average price	Five stars	5.487	31.5%	13.0%	22.4%
H	Neutral facial expressions	Average price	Four and a half stars	3.629	0.7%	9.2%	6.4%
I	Neutral facial expressions	Above average price	Four stars	1.759	0.0%	5.1%	1.4%
J	Positive facial expressions	Below average price	Five stars	5.650	49.1%	13.5%	27.8%
K	Positive facial expressions	Average price	Four and a half stars	3.792	3.6%	9.6%	8.0%
L	Positive facial expressions	Above average price	Four stars	1.923	0.7%	5.6%	1.8%

[a] Including tied simulations.
[b] 89 out of 139 subjects are used in the Bradley-Terry-Luce and Logit methods because these subjects all have non-negative scores.

Williams, 2002) and unaffiliation (Hess et al., 2000) and activates the fear system (Öhman & Dimberg, 1978; Öhman, 1986). Results from previous research examining the connection between trust and social presence stimuli (Aldiri et al., 2008; Cyr et al., 2009) could provide an explanation of our finding here. The absence of a social cue, i.e. a facial image, might have reduced the trustworthiness of the seller, as consumers derive trust evaluations based on a perceptual assessment of the sellers' images (Ert et al., 2016). The first and second assumptions —an image of a seller with an angry facial expression and absence of facial image abates approach and evokes avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace, and simultaneously decreases the likelihood to rent —are supported.

The finding from the present study shows that a seller with an image that has a neutral facial expression evokes approach and abates avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace. Previous literature states neutral facial expressions showing a control of emotions (Schneider et al., 2013), are perceived to be dominating (Hareli et al., 2013) and rated as untrustworthy (Krumhuber et al., 2007). Our results contradict these findings, as our third assumption —that an image of a seller with a neutral facial expression abates approach and evokes avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace, and simultaneously decreases the likelihood to rent —is not supported. This effect might be due to the nature of this online context, where the neutral facial expression is a visible social cue that signals online presence (as compared to the absence of a facial image). This is evident in the findings as a neutral facial expression had a positive impact on likelihood to rent.

A seller with an image that has a positive facial expression evokes approach and abates avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace. This is in line with the literature, as a positive facial expression is regarded as more trustworthy (Krumhuber et al., 2007; Scharlemann et al., 2001), highly affiliative, and cooperative (Hess et al., 2000; Knutson, 1996), resulting in increased approach ratings. Therefore, from these findings, we conclude that the fourth assumption is supported, that is, an image of a seller with a positive facial expression evokes approach and abates avoidance tendency to explore a specific web page in a peer-to-peer property rental marketplace and, simultaneously, increases the likelihood to rent.

In general, women had a stronger reaction to negative and positive facial stimuli used in the study. This supports the literature findings that women are more adept than men at judging and recognizing facial expressions (Hall & Matsumoto, 2004; Hoffmann et al., 2010). Taken together, these results show support for our fifth assumption —an image of a seller and its positive or negative facial expression, have a greater impact on women's likelihood to rent an apartment in a peer-to-peer rental marketplace then for men. However, the data shows significant differences only for negative facial expression and not for positive facial expression.

The scenario simulation shows that facial expressions in a peer-to-peer rental context can be the decisive factor: as significant as price and customer ratings. A large drop in preference probabilities related to negative facial expression and absence of a facial image demonstrates that these antecedent stimuli cannot be compensated for by a low price for the accommodation and top ratings from previous customers. This finding supports Guttentag's (2015) assumption, that a personal image and inherent expression can be understood as a type of identity verification in a peer-to-peer accommodation rental context, and its function is to establish a personal relationship between the buyer and seller. This is especially important for peer-to-peer rental services that are intangible (Levitt, 1981, pp. 94–102) and inseparable (Grönroos, 1978) by nature.

This study has some limitations. In a study where a list of antecedent stimuli is presented, order effects will occur (Chrzan, 1994). The main-effect-only model was used in the conjoint study. This ignores any possible interaction effect between antecedent stimuli and levels. The dependent variables are measured by the participants' report, and not actual purchasing behavior. Despite these limitations, this study has some specific contributions. We found that price has the most impact on buying behavior within a peer-to-peer accommodation rental service setting, followed by facial expressions and customer ratings. We also found which of these three antecedent stimuli have the most impact on approach-avoidance tendency to explore the web page in this setting. These findings can be useful in the planning of strategies for the sharing economy market. The results from the conjoint analysis can be useful in modifying current offerings and in designing new ones (Green & Wind, 1975). Accordingly, these results could apply to other service related peer-to-peer marketplaces (e.g., peer-to-peer lending, peer-to-peer bus/taxi/ride sharing) since the majority of them employ a similar design. In addition, these results might be useful for electronic marketplaces (in general) to test the influence of facial expressions, specifically within online apparel retailing. As the models used to display clothing have facial expressions, those expressions will have approach- and avoidance-related impacts on buyers' tendency to explore the web page and likelihood to purchase products.

The results of this study also demonstrate that marketing can benefit from the application of evolutionary psychology (Saad &

Gill, 2000). This study was context-specific. Consequently, the implications are related to marketing executives and website designers within online businesses. Firstly, we found that price was the most important criterion for consumer evaluations. Therefore, price should be more prominent within the design of peer-to-peer websites, especially when the seller has a competitive price. This must also be kept in mind when designing a mobile-friendly website or application. Second, since the absence of a facial image was negative, buyers should be required to post an image on peer-to-peer commerce websites. Third, the results of this study indicate that facial expression images of a seller present on websites can affect consumer purchasing behavior, which makes them a potentially effective target for design efforts (Landwehr, McGill, & Herrmann, 2011). Consequently, these facial expressions (combined with attractive prices and favorable customer ratings) can be altered to generate a positive approach response and reduce factors which elicit avoidance.

The first directions for future research will be to replicate this study and address the limitations. We employed a main-effect conjoint design. Future research could employ an interaction-effect conjoint design (the effect one stimulus might have on the choice of another) and compare the results with findings in this study. Another potential area of future research could be to use the same conjoint analysis design, using a computer lab instead of projectors in a lecture room. The experiment could be carried out in something more approximating a controlled setting, in which participants would be sitting in front of a screen. This would be beneficial because there will be a greater task similarity between the experiment setting and the natural setting, which may lead to increase external validity (Elrod, Louviere, & Davey, 1992).

Furthermore, we discussed gender differences and how women are better at displaying facial expressions (Brody & Hall, 2008), but in our stimulus images, we used a grayscale image of a male seller displaying a facial expression. Future experiments could use color images of a man as well as a woman displaying the same expressions, and the results can be compared to the findings of this study. Moreover, the effect of facial attractiveness could be studied within the same context. Some literature indicates that anger results in approach (Carver & Harmon-Jones, 2009; Harmon-Jones & Allen, 1998; Marsh et al., 2005), although we did not find this in this context. Given that threatening faces activate the fight-flight system (Mühlberger et al., 2011), a flight response (fear) would result in avoidance and fight response (anger) would result in approach. Further research in the same online peer-to-peer context might reveal this connection between anger and approach, maybe in relation to facial attractiveness. Since our study was carried out with a Norwegian population, it will be useful to replicate the study in different countries and populations to ascertain whether these findings have a similar effect.

6. Conclusion

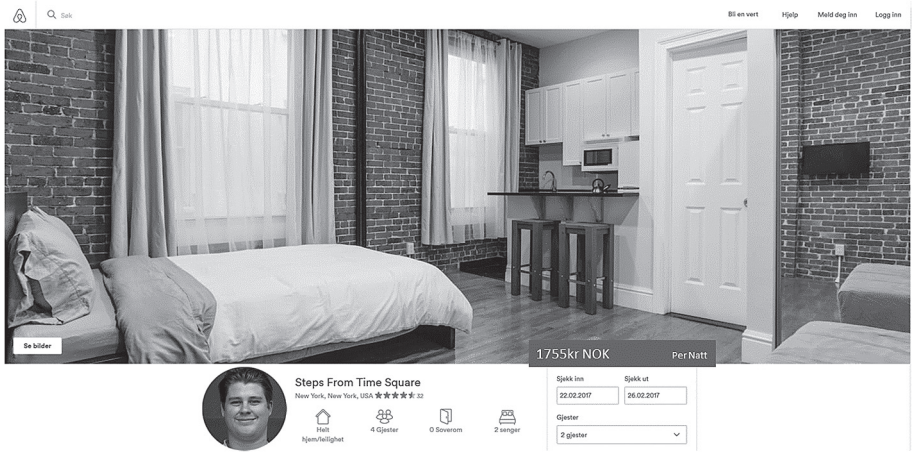
To the best of our knowledge, this is the first study that has examined the impact of a seller's personal profile image and its facial expressions in the sharing economy context. The results suggest that price has the most impact on consumer approach-avoidance tendency to explore the web page, and likelihood to rent within this context, followed by facial expressions and customer ratings. When analyzing facial expression levels, we found that an angry facial expression and absence of a facial image (head silhouette) abates buyers' approach and evokes avoidance tendency to explore a specific web page on Airbnb, and simultaneously decreases the likelihood to rent the apartment. On the contrary, an image of a seller with a positive or even neutral facial expression can increase approach behavior and thus the likelihood to rent. The results also show that, even within this context, facial expression images of a seller show differential effects between male and female buyers. Existing literature on facial studies, evolutionary psychology, and sharing economy, combined with a conjoint analysis, resulted in relevant implications for practitioners and managers.

The approach and avoidance items used with conjoint analysis can be used to generate a considerable amount of data, especially in an e-commerce context. Since research on the sharing economy is relatively recent and economists have shown an interest in evolutionary psychology, this study has revealed some directions for future researchers who can use the established interdisciplinary literature to study new and emerging phenomena.

Appendix A

The evaluation scenario and an example of how the stimulus cards appared (translated from Norwegian): Suppose you and a friend are planning a vacation to New York for the winter holidays. You plan to stay from Wednesday to Sunday (four nights). You have found an apartment on Airbnb, a social marketplace that gives buyers the ability to rent or book accommodation worldwide. In addition to information about the seller (image, customer ratings, etc.), Airbnb informs you that the average price per night is 1755 NOK. You will now see 20 different purchase situations, and you should consider these in relation to: 1) motivation to explore this specific web page on Airbnb, and 2) intention to rent this apartment on Airbnb. The first purchase situation is an example.

Stimulus card 6.



Appendix B

The three facial expressions images ("angry", "neutral", and "joy") are taken from Cohn-Kanade AU-coded facial expression database (©Jeffrey Cohn) with consent for publication (Kanade et al., 2000; Lucey et al., 2010).

Anger

Head silhouette

Neutral

Joy

Appendix C

Factorial design used to synthesize stimulus cards. Stimulus cards 17–20 are hold-out cards.

Stimulus card	Antecedent stimuli and levels		
	Facial Expressions	Price	Customer Ratings
1	4	3	1
2	2	1	2
3	4	1	1
4	1	1	2
5	3	2	1
6	4	2	2
7	3	1	3
8	4	1	3
9	2	3	3
10	1	1	1
11	3	3	2
12	3	1	1
13	1	2	3
14	2	1	1
15	1	3	1
16	2	2	1
17	2	1	3
18	1	3	3
19	1	3	2
20	1	1	3

Note. Antecedent stimuli and their levels correspond to Table 1.

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